

Table of Contents

Summary.....	iii
Chapter 1. Purpose and Need for Action.....	1
Document Structure.....	1
Location.....	1
Background.....	3
Travel Management Rule.....	3
Legal Framework.....	5
Purpose and Need for Action.....	7
Decision Framework.....	8
Proposed Action.....	9
Public Involvement.....	12
Issues.....	13
Significant Issues and Indicator Measures.....	13
Chapter 2. Alternatives, Including the Proposed Action.....	17
Introduction.....	17
Alternative Development.....	17
Relationship of Alternatives to Forest Plan Direction.....	17
Features Shared by All Alternatives.....	18
Description of the Alternatives.....	19
Alternatives Considered but Eliminated from Detailed Study.....	33
Comparison of Alternatives.....	35
Comparison of Alternatives by Issue.....	38
Implementation.....	41
Monitoring.....	42
Chapter 3. Affected Environment and Environmental Consequences.....	45
Introduction.....	45
Past, Present, and Reasonably Foreseeable Activities.....	45
General Assumptions for All Alternatives.....	46
Recreation.....	46
Introduction.....	46
Applicable Laws, Regulations, Policy, and Forest Plan Direction.....	47
Methodology.....	49
Affected Environment.....	50
Environmental Effects Analysis.....	51
Engineering and Transportation.....	66
Introduction.....	66
Applicable Laws, Regulations, Policy, and Forest Plan Direction.....	69
Methodology.....	71
Affected Environment.....	73
Environmental Effects Analysis.....	85
Socio-Economic Concerns.....	89
Introduction.....	89
Applicable Laws, Regulations, Policy, and Forest Plan Direction.....	91
Methodology.....	92
Affected Environment.....	92
Environmental Effects Analysis.....	97
Soils.....	100
Introduction.....	100
Applicable Laws, Regulations, Policy, and Forest Plan Direction.....	100

Methodology	101
Affected Environment.....	104
Environmental Effects Analysis.....	104
Hydrology.....	114
Introduction.....	114
Applicable Laws, Regulations, Policy, and Forest Plan Direction	114
Methodology	116
Affected Environment.....	117
Environmental Effects Analysis.....	119
Monitoring and Recommendations	131
Conclusion	131
Fisheries.....	132
Introduction.....	132
Applicable Laws, Regulations, Policy, and Forest Plan Direction	132
Methodology	134
Affected Environment.....	135
Environmental Effects Analysis.....	136
Wildlife.....	143
Introduction.....	143
Applicable Laws, Regulations, Policy, and Forest Plan Direction	143
Methodology	144
Affected Environment.....	146
Environmental Consequences	175
Cumulative Effects.....	229
Plants and Botanical Resources	231
Introduction.....	231
Applicable Laws, Regulations, Policy, and Forest Plan Direction	232
Methodology	232
Affected Environment.....	235
Environmental Effects Analysis.....	241
Scenery	252
Introduction.....	252
Applicable Laws, Regulations, Policy, and Forest Plan Direction	252
Methodology	253
Affected Environment.....	256
Environmental Effects Analysis.....	258
Cultural Resources.....	264
Introduction.....	264
Applicable Laws, Regulations, Policy, and Forest Plan Direction	265
Affected Environment.....	265
Environmental Effects Analysis.....	266
Consultation	272
Range and Weeds	272
Introduction.....	272
Applicable Forest Plan Direction.....	272
Methodology	272
Affected Environment.....	274
Environmental Effects Analysis.....	274
Invasive Species (Noxious Weeds)	276
Introduction.....	276
Applicable Forest Plan Direction.....	276

Methodology.....	277
Affected Environment	278
Environmental Effects Analysis	278
Short-term Uses and Long-term Productivity	280
Unavoidable Adverse Effects.....	280
Irreversible and Irretrievable Commitments of Resources.....	280
Other Required Disclosures	281
Chapter 4. Consultation and Coordination	283
Preparers and Contributors.....	283
Distribution of the Environmental Impact Statement.....	285
Appendices	293
Appendix A: Travel Management Rule.....	295
Appendix B: Design Criteria Common to All Alternatives.....	305
Cultural Resources	307
Hydrology and Fisheries	308
Appendix C: Literature Cited	313
Appendix D: Content Analysis for Travel Management Planning.....	327
Introduction	327
Black Hills Travel Management Planning.....	327
Summary Comments	327
How Public Concern Statements Relate to Issues.....	335
Appendix E: Cumulative Effects.....	337
Appendix F: Proposed Forest Plan Changes for Travel Planning Alternatives.....	339
Alternative B Would Change the Existing Forest Plan Direction in the Following Ways.....	339
Alternative C Would Change the Existing Forest Plan Direction in the Following Ways.....	342
Alternative D Would Change the Existing Forest Plan Direction in the Following Ways.....	346
Alternative E Would Change the Existing Forest Plan Direction in the Following Ways.....	349
Appendix G: Glossary	353
Appendix H: U.S. Forest Service Region 2 Sensitive Plant Species Known from the Black Hills with Rationale for Further Analysis	360
Appendix I: Map Packet	365
Index.....	367

List of Tables

Table 1. Indicators of motorized recreation opportunities in Alternative A (no action)	21
Table 2. Motorized recreation opportunities in Alternative B, the proposed action.....	24
Table 3. Motorized recreation opportunities in Alternative C.....	26
Table 4. Motorized recreation opportunities in Alternative D.....	29
Table 5. Motorized recreation opportunities in Alternative E.....	31
Table 6. Consistency with State traffic law, and non-highway-legal vehicle travel opportunity by alternative	32
Table 7. Comparison of indicator measures for the alternatives	36
Table 8. Hunting in the Forest for 2006 as represented in reports from Wyoming and South Dakota Game and Fish Departments	48
Table 9. Black Hills National Forest ROS classes.....	51
Table 10. Miles of road within semi-primitive nonmotorized (SPNM) and roaded natural nonmotorized (RNNM) areas	53
Table 11. Alternative A roads or trails open or closed to motorized use within semi-primitive nonmotorized or roaded natural nonmotorized areas	53
Table 12. Analysis indicators for Alternative A.....	54

Table 13. Alternative B roads or trails open or closed to motorized use within semi-primitive nonmotorized or roaded natural nonmotorized area	57
Table 14. Analysis indicators for Alternative B.....	57
Table 15. Alternative C roads or trails open or closed to motorized use within semi-primitive nonmotorized or roaded natural nonmotorized areas.....	59
Table 16. Analysis indicators for Alternative C.....	61
Table 17. Alternative D roads or trails open or closed to motorized use within semi-primitive nonmotorized or roaded natural nonmotorized areas.....	63
Table 18. Analysis indicators for Alternative D	64
Table 19. Analysis indicators for Alternative E.....	65
Table 20. Miles of inventoried road by system for the Black Hills National Forest	67
Table 21. Miles of road by maintenance level for Forest Service-jurisdiction roads within the Black Hills National Forest.....	69
Table 22. Summary of State law requirements	75
Table 23. Annual and deferred maintenance costs for Forest Service System roads on the Black Hills (2007 figures)	78
Table 24. Road and trail management funding sources	79
Table 25. Miles of roads open to all vehicles (motorized-mixed use) by alternative	86
Table 26. Miles of routes near lands of other ownership and nonmotorized trails by alternative	87
Table 27. Miles of routes near lands of other ownership and nonmotorized trails by alternative	87
Table 28. Miles of various roads and trails by alternative	88
Table 29. Water resource indicators by alternative. These indicators are also applicable to the fisheries resource.	123
Table 30. Existing motorized recreation information for ponderosa pine habitat	147
Table 31. Miles of motorized routes in hardwood habitat on the Forest	148
Table 32. Miles of motorized routes in mountain mahogany habitat.....	148
Table 33. Forest Service Region 2 sensitive species analyzed	156
Table 34. Black Hills species of local concern	172
Table 35. Species of conservation concern and Wyoming PIF priority 1 species	174
Table 36. Black Hills species of local concern and disposition of effects analysis	223
Table 37. Routes requiring design criteria, removal or rerouting to avoid impacts to special status plant species or areas	234
Table 38. Current conditions for hardwoods and associated motorized recreation	236
Table 39. Species potentially impacted and routes that will be designed, rerouted or removed to avoid the known occurrences in the identified alternatives	248
Table 40. Indicators for Alternative B	260
Table 41. Indicators for Alternative C	261
Table 42. Indicators for Alternative D.....	261
Table 43. Motorized use in total miles by all scenic integrity objectives	264
Table 44. Comparison of indicator measures and alternatives for range	275
Table B-1. Routes requiring design criteria	305
Table B-2. Routes closed seasonally (April 1–August 15) to protect nesting goshawks.....	311

List of Figures

Figure 1. Black Hills National Forest planning area (Source: USDA Forest Service 2004)	2
Figure 2. Acres open to motorized cross-country use under each alternative (NOTE: Cross-country travel in Alternatives B and C would be for limited purposes only)	32
Figure 3. Miles of motorized-mixed-use routes by alternative, in terms of trails and mixed-use roads (NOTE: High current use on unauthorized routes is not reflected in this figure, but is shown as cross-country use in Figure 2).....	33

Figure 4. Trail mileage in each alternative by vehicle type..... 33

Figure 5. A maintenance level 2 road with damage caused by ATV track following. The damage is increased by erosion when the tracks channel water down the road..... 81

Figure 6. A maintenance level 2 road with erosion damage accelerated by ATV traffic loosening soils on steep section 82

Figure 7. A motorized section of the Centennial Trail less than one year after it underwent an expensive reconstruction 83

Figure 8. Bridge crossing on motorized section of Centennial Trail..... 84

Figure 9. Total population for the seven-county study area, 1990 – 2000 (Source: U.S. Department of Commerce 2002) 93

Figure 10. Example of sediment being added to a stream from a user-created route in a cross-country-use area..... 120

Figure 11. Example of streambank instability from a user-created route in a cross-country-use area 121

Figure 12. Examples of stream widening and potential effect to water temperature from user-created routes when crossings are not hardened or properly mitigated..... 121

Figure 13. Example of wetland crossing from a user created route in a cross-country use area . 122

Figure 14. Example of filling across a floodplain creating an effective dike or dam that affects flood flows..... 122

Figure 15. General distribution of beaver on the Black Hills National Forest (Source: NRIS Fauna database) 153

Figure 16. Miles of seasonal and year-long motorized routes by alternative on the Black Hills National Forest 176

Figure 17. Acres open to motorized game retrieval by alternative on the Black Hills National Forest..... 176

Figure 18. Acres open to motorized dispersed camping by alternative on the Black Hills National Forest..... 177

Figure 19. Miles of motorized routes in ponderosa pine habitat by alternative on the Black Hills National Forest 177

Figure 20. Miles of motorized routes in spruce habitat by alternative on the Black Hills National Forest..... 178

Figure 21. Miles of motorized routes in hardwood habitat by alternative on the Black Hills National Forest 179

Figure 22. Miles of routes within 400 feet of riparian habitat by alternative 180

Figure 23. Miles of motorized routes in grassland cover types by alternative 181

Figure 24. Miles of motorized routes in primary brown creeper habitat by alternative 184

Figure 25. Miles of motorized routes in aspen by alternative on the Black Hills National Forest 187

Figure 26. Comparison of winter open route density (miles/sq mile) in management areas 5.4 and 5.43 by alternative 192

Figure 27. Miles of motorized routes in ponderosa pine structural stages 4C and 5 by alternative 201

Figure 28. Miles of motorized routes in burned habitat by alternative..... 202

Figure 29. Miles of motorized routes in ponderosa pine structural stages 4A and 5 by alternative 207

Figure 30. Miles of motorized routes in ponderosa pine structural stages 4B, 4C and 5 by alternative 212

Figure 31. Miles of motorized routes in high-value marten habitat by alternative..... 215

Figure 32. Miles of motorized routes within bighorn sheep use areas by alternative 219

Figure 33. Miles of motorized routes in mountain goat use areas by alternative 227

Figure 34. Landscape distance zones (USDA Forest Service 1995, Chapter 4, p. 5)..... 254